Granular Flow Module Integrated with Fluids Rack

Granular Flow Module

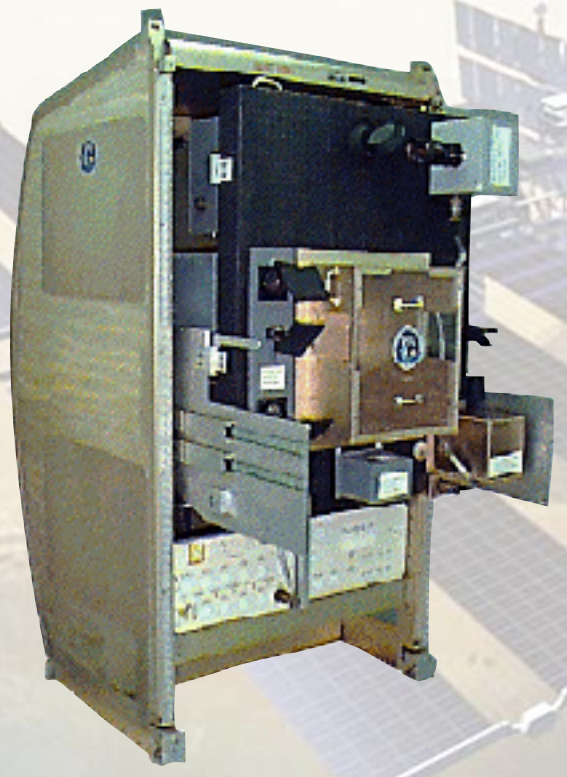
- Granular material shear cells
- Motor, drive electronics
- Material replacement mechanism
- Diagnostics
- Rack interface

Fluids Integrated Rack

- Power Supply
- Avionics/Control
- Common Illumination
- PI Integration Optics Bench
- Environmental Control
- Data Processing
- Laser Light Containment

Glenn Research Center

Jenkins/Louge Experiments Integrated with Fluids Rack



Science Accommodated

- Investigate segregation in binary granular mixtures driven by mechanisms not influenced by gravity, in simple shear flow
- Investigate the effect of particle geometry and inertia on gravity-free segregation
- Compare the experimental measurements with theory and simulations of segregation in binary granular mixtures
- Investigation of the relative effects of differing inertia vs. differing geometry at fixed volume fraction, on binary mixture segregation
- Development of novel computer vision algorithms for particle tracking under a range of more or less favorable lighting conditions
- Investigation of the interaction between granular particles and surrounding gas on the particle dynamics, cluster formation and breakup

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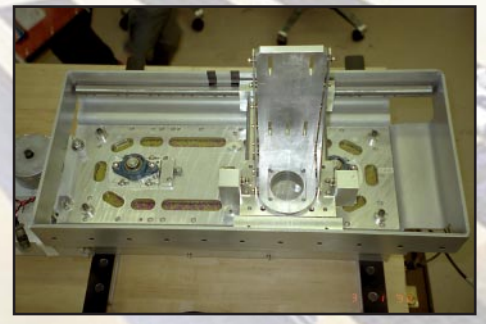

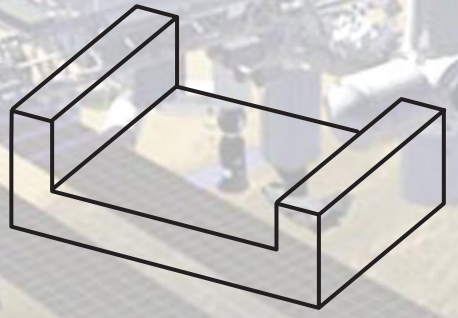

PI Specific Hardware

- Granular material shear cells
- Motor, drive electronics

Experiment Common Systems

- Mixture replacement mechanism
- Diagnostics
- Rack interface

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